

CLAIMS**What is claimed is:**

1. A vector capable of replication in the cytoplasm of a plant cell, the vector comprising a first subgenomic promoter operably linked to a first polynucleotide encoding a target gene inhibitory RNA, and a second subgenomic promoter operably linked to a second polynucleotide encoding a viral coat protein derived from a tomato mosaic virus, wherein said vector is derived from a tobacco mosaic virus and is capable of systemically infecting a host plant and producing the inhibitory RNA.

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2. The vector according to Claim 1, wherein said first polynucleotide is upstream to said second polynucleotide.

3. The vector according to Claim 1, wherein said host plant is a *Nicotiana*.

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4. The vector according to Claim 1, wherein said target gene inhibitory RNA is an endogenous plant gene inhibitory RNA.

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5. The vector according to Claim 1, wherein said target gene inhibitory RNA is an antisense RNA.

6. The vector according to Claim 1, wherein said target gene inhibitory RNA is a co-suppressor RNA.

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7. The vector according to Claim 1, wherein the first polynucleotide encodes a phytoene desaturase RNA in an antisense direction in relation to the first subgenomic promoter.

8. The vector according to Claim 1, wherein the first polynucleotide encodes a phytoene synthase RNA in an antisense direction in relation to the first subgenomic promoter.

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9. A method of producing a plant cell having reduced expression of a gene of interest, the method comprising the steps of transfecting a plant cell with the vector according to Claim 1, wherein the target gene inhibitory RNA is specific for the gene of interest.

10. A method of producing a plant cell having reduced expression of a gene of interest, the method comprising the steps of transfecting a cell with the vector according to Claim 7, and then growing the transfected cell under conditions suitable for growth of the vector.

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11. A method of producing a plant cell having reduced expression of a gene of interest, the method comprising the steps of transfecting a cell with the genetic vector according to Claim 8, and then growing the transfected cell under conditions suitable for growth of the vector.

10 12. A plant cell produced by the method of Claim 9.

13. A plant cell comprising the vector according to Claim 1.

14. A plant cell comprising the vector according to Claim 7.